

## **REMARKS**

The issues outstanding in the Office Action mailed February 23, 2006, are the rejections under 35 U.S.C §§112, 102 and 103. Reconsideration of each of these issues, in view of the following discussion, is respectfully requested.

### **Rejections under 35 U.S.C. §112**

Claims 1, 2, 17-19, 21, 22 and 24-30 have been rejected under 35 U.S.C. §112, second paragraph. Reconsideration of this rejection is respectfully requested. The claims have been clarified, as clearly supported in the present specification, for example, at page 9, lines 10-15 and 24-25 as well as in original claim 4. It is believed clear, for example in figure 3, that it is plate (200) which causes the liquid level to occur, as noted at page 2 of the Office Action. It is believed that the claims are now sufficiently clear, and withdrawal of the rejection under 35 U.S.C. §112 is respectfully requested.

It is submitted that the remainder of the rejections are moot in view of minor typographical changes to the claims. Withdrawal of the rejection is respectfully requested.

### **Rejections under 35 U.S.C. §102**

Claims 19, 21, 22 and 26 have been rejected under 35 U.S.C. §102(b) over Alcock '961. Reconsideration of this rejection is respectfully requested. It is believed clear, for example from figure 1 of the patent, that the patentees do not disclose conduits for the passage of a gaseous fraction of fluid or a fluid mixture from an upper granular bed, said conduits traversing the chamber in a fluid tight manner, and having a plate preventing flow of a liquid fraction of the fluid or fluid mixture originating from the upper granular bed through said conduits. In figure 1 of Alcock, there appears to be no such plate in conduits (29). Thus, Alcock does not disclose all the features of claims 19, 21, 22 and 26, withdrawal of the rejection is respectfully requested. It is believed that, in view of the clarification of these claims, the examiner may not have fully appreciated the features previously. However, it is now submitted that it is clear that the rejection should be withdrawn. The same is respectfully requested.

### Rejections under 35 U.S.C. §103

Claims 25, 27, 28 and 30 have been rejected under 35 U.S.C. §103 over Pappas '586 taken with Billingham '887. Reconsideration of this rejection is respectfully requested.

It is, at the outset, respectfully submitted that the office action fails to establish motivation for one of ordinary skill in the art to combine the references. While the office action combines various features of the references, picking and choosing those which are necessary to allege obviousness of claim features, the only discussion of "motivation" to make such a selection in combination is that at, for example, pages 7 and 9, "the basis of suitability for the intended use thereof." While this allegation is not fully understood, it is respectfully submitted that, at any rate, it falls far short of the necessary exposition of motivation required by the Federal Circuit in order to support an allegation of obviousness. See *In re Laskowski*, 10 U.S.P.Q.2d 1397 (Fed. Cir. 1989). In view of the lack of such an adequate discussion of why one of ordinary skill in the art would find the motivation to make the combination alleged, it is submitted that the rejection fails to establish a case of prima-facie obviousness.

It is submitted, in any event, that the combination of references does not suggest the present claims. Billingham teaches mixing of a liquid through a converging central opening or localized area openings, see column 3, lines 22-32 and column 4, lines 36-39. Such failed to suggest distribution of a polyphase mixture, e.g., through channels such as (224) *substantially over the whole section of the reactor* or substantially above the whole lower granular bed, as would be achieved by a "series" of mixture channels. Instead, Billingham separates the function of liquid mixing (through the central opening) and liquid distribution (through lower grid (3)). Moreover, patentees avoid gas and liquid mixing inside the device by such an arrangement of features. Thus, if one of ordinary skill of the art were to combine the disclosure of Billingham with that of Pappas, the result would be a replacement of downcomers (11) of Pappas by a central converging downcomer and a grid such as that (3) of Billingham, to achieve down stream liquid distribution. Such a grid would be located under the Pappas gas injection box (7) and (12) in combination with Pappas. Thus, it is submitted that the combination of references would not result in the features of, for example, independent claim 25. Moreover, such a combination fails

to suggest the use of the means for circulating liquid and gas phases through the granular bed or beds in a co-current descending manner. Note that claim 21, reciting these features (which are now recited in claim 25), was not subject to this rejection. Withdrawal of the rejection is therefore respectfully requested.

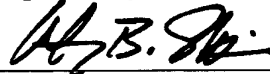
Claims 1, 2, 17-19, 21, 22, 24, 26 and 29 have been rejected under 35 U.S.C. §103 over Forster et al. '919 taken with Alcock '961. Reconsideration of this rejection is respectfully requested.

It is again submitted that an inadequate discussion of motivation for the combination of these references is presented in the Office Action. "Suitability for intended use", to the extent this phrase is understood, is not an explanation of *why* one of ordinary skill would make the combination. It is moreover submitted that such a combination fails to teach plates on top of conduits so as prevent liquid from entering the conduits. It is assumed that, prior to the present clarification of the claims, the examiner did not fully appreciate this feature. Moreover, even if one of ordinary skill in the art would have combined these references, such a combination would also carry along with it valley (18) and the inner mixing compartment of figures (2) and (3), see column 3, lines 38-47 of Alcock, as well as downcomers (29). From the presence of valley 18, and numerous holes (20) in figure 3 on roof (12), it is improbable that a liquid level would establish on roof (12). In fact, it is more likely that liquid falling on the roof would flow into the valley and enter the inner compartment through holes (20) without establishing any liquid level. Thus, such a combination of references would not result in a structure with a plate such as plate (200) establishing a liquid level. Thus, even the combination of references would not result in the presently claimed apparatus. Withdrawal of the rejection is therefore respectfully requested.

The claims in the application are submitted to be in condition for allowance. However, if the examiner has any questions or comments, she is cordially invited to telephone the undersigned below.

The Commissioner is hereby authorized to charge any fees associated with this response or credit any overpayment to Deposit Account No. 13-3402.

Respectfully submitted,



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